

Summary of Peer Review Responses (Table Format)

Peer Review Question	Reviewer #1	Reviewer #2	Reviewer #3
<p>1. Does the Summary Report dated May 24, 2013 clearly and comprehensively describe the sources, environmental levels, and potential exposures for PCBs in school buildings?</p>	<ul style="list-style-type: none"> • Yes. Could develop an understanding of each. • Format of report not easy to follow. • Difficult to draw an overall conclusion of the effectiveness of specific remedies. • Due to use of multiple remedies data would be more effectively presented by school. 	<ul style="list-style-type: none"> • No. It attempts to achieve this by referencing the EPA PCBs in School Buildings report. • Unknown if sources such as mastics used to adhere thermal insulation to the exterior of ventilation ducts were considered as a source. 	<ul style="list-style-type: none"> • Report written fairly clearly but needs better organization. • Principal findings are not self-evident. • Need information on potential sources other than caulk and selected other media. • Report does not clearly state the scope of work.

<p>2. Please comment on the appropriateness of the remedies selected. Do they provide adequate reductions of the exposure to PCBs? If not, do you have suggestions for additional reductions that could be achieved, given the available data?</p>	<ul style="list-style-type: none"> • Remedies were appropriate with the exception that a decontamination of the substrate or treatment of the substrate could have been integrated into one of the remedial options. • Need for a secondary barrier to protect replacement caulk. • BMPs are appropriate; uncertain whether intact caulk needs to be included in the BMPs. 	<ul style="list-style-type: none"> • Implementation of the remedies should reduce inhalation exposure to below EPA's levels. • Eliminating PCB caulk is problematic. • Removal of PCB ballasts will likely have the greatest impact. • Should consider evaluating a hybrid approach between source modification (through chemical degradation) and contact encapsulation. 	<ul style="list-style-type: none"> • More information needed to answer the question. • Does not believe regulatory thresholds for bulk materials and surface exposure are risk based. Need to determine acceptable exposures to PCBs.
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<p>3. For each remedy: Does the remedy provide sufficient information to reasonably demonstrate the effectiveness of the proposed remedy? If not, what additional information is needed?</p>	<ul style="list-style-type: none"> • Patch and Repair of Caulk, Remove and Replace Caulk, and Caulk Removal Associated with Widow Removal: Effective except in areas where only deteriorated caulk is removed. • Encapsulation: Use of hexane wipes (or other aggressive organic solvents) may not represent actual surface concentrations. • Light Fixture/Ballast Removal: Yes • BMPs: Yes, but uncertain whether intact caulk needs to be addressed. Also, BMPs should include more information on ventilation adjustment/repair. 	<ul style="list-style-type: none"> • Ballast Response Protocol: Reviewer recommends immediate evacuation and ventilation of affected area. • Reviewer recommends justifying the adequacy of the 20 air changes in the current protocol. • BMPs: The Increase in air exchange rate after improvement of ventilation should be included in the report. Effectiveness could not be determined using air sampling. <p>The reviewer does not provide responses for the other remedies.</p>	<ul style="list-style-type: none"> • Caulk Patch and Repair; Caulk Removal and Replacement; Light Fixture Removal and Replacement; Cleaning; and Exterior Sources: Yes • Caulk Encapsulation: No (report makes no mention if a barrier was used between the caulk and the encapsulant). • Window Replacement: No. More information on disposition of caulk around window frames is needed. • BMPs: No. Air testing needed. • Ventilation: No. Report should include a chart of the ventilation modes in NYC schools and corresponding ventilation strategies. • Carbon Filtration: No
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<p>4. For each remedy: Are the methodologies used consistent with the state-of-science? If not, please provide specific references and suggestions for revision.</p>	<ul style="list-style-type: none"> • Removal Remedies: Should have considered the use of a secondary barrier and treatment or decontamination methods for the substrate. • Encapsulation: Should have considered other verification testing techniques. • Post-remediation air samples may have been collected too soon after remedy implementation. Specific cause-effect relationship difficult to determine with the data presented. • The Relative Source Strength approach is sound. 	<ul style="list-style-type: none"> • Reviewer's response: "Yes, the methodologies used are consistent with the state-of-science, as applicable." 	<ul style="list-style-type: none"> • Should account for the quantitative effects of temperature on PCB emissions and ventilation on removal of airborne PCBs. • The reviewer directs the reader to the responses to the preceding question.

<p>5. Do you have specific recommendations for clarification, explanation, or analysis of data, results, conclusions or other information included in this report?</p>	<ul style="list-style-type: none"> The Preferred Citywide Remedy should have some prioritization components to focus the remedy within each school; e.g., prioritization for ventilation assessment and caulk remediation via screening to address caulk with higher levels of PCBs first. 	<ul style="list-style-type: none"> Include concise data summary tables as an appendix to the report. 	<ul style="list-style-type: none"> Provide information on the amount of interior PCB caulk in each school (length, width, exposed area, weight, and any coating). Clarify the PCB exposure benchmarks used to evaluate the success of the remedies.
<p>6a. Are there alternatives to the visual inspection protocol for detecting ballasts that have leaked?</p>	<ul style="list-style-type: none"> Visual inspection is appropriate, but to completely ascertain if a leak occurred the fixture should be opened. 	<ul style="list-style-type: none"> Detection by odor Set a frequency for inspecting the fixtures. 	<ul style="list-style-type: none"> Air testing is suggested as an alternative.
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<p>6b. EPA has suggested revising the re-occupancy protocol to include post cleanup air sampling in addition to the current practice of surface wipe sampling for PCBs. Is wipe sampling alone adequate to minimize exposure of students and staff to PCBs?</p>	<ul style="list-style-type: none"> No, but given the potential for other contributing sources, air testing should not be made part of the re-occupancy protocol. However rooms where leaks have occurred should be prioritized for ventilation assessment. 	<ul style="list-style-type: none"> Wipe sampling results will most likely be below EPA's criteria; air sampling would be a better approach and would be useful in evaluating validity of 20 air exchange ventilation protocol. 	<ul style="list-style-type: none"> Wipe sampling is not specific to source of PCBs. If the concern is PCB exposure regardless of source then air sampling is more inclusive.

<p>6c. If sampling for PCBs in air, is it possible to achieve a low enough detection limit (at least 50 ng/m³) using a passive sampler?</p>	<ul style="list-style-type: none"> • Uncertain whether a low enough detection limit can be consistently achieved. Recommend using a traditional air sampling approach. 	<ul style="list-style-type: none"> • Reviewer has no experience with the use of passive samplers for PCB assessment in indoor air. 	<ul style="list-style-type: none"> • The advantages and disadvantages should be explored before adopting a passive sampling approach.
<p>6d. The approaches evaluated thus far include patch and repair, removal and encapsulation. Are there other approaches that may be evaluated?</p>	<ul style="list-style-type: none"> • Evaluation of secondary barriers or substrate treatment measures is recommended 	<ul style="list-style-type: none"> • Source modification with contact encapsulation. 	<ul style="list-style-type: none"> • Polyethylene tape as part of an encapsulation remedy; the use of gypsum board and aluminum strips as a barrier.

<p>6e. Should the caulk management plan address both deteriorated and intact caulk, or should it focus on only one condition of caulk?</p>	<ul style="list-style-type: none"> • Prioritize addressing the intact caulk based on concentration and accessibility. • Suggests using XRF for screening caulk to prioritize for remedy, further assessment, and/or for ventilation assessments and improvements if deemed needed to increase air exchanges. 	<ul style="list-style-type: none"> • Include both deteriorated and intact caulk with an emphasis on deteriorated caulk. O&M plan should be developed for each school that include provisions for periodic air and surface sampling to assess PCB concentrations and effectiveness of mitigation controls. 	<ul style="list-style-type: none"> • Focus on all forms of caulk that contain PCBs at percent level concentrations.
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<p>6f. Are there procedures, in addition to those specified in the collective bargaining agreement, which would minimize the impact of PCB releases?</p>	<ul style="list-style-type: none"> • BMPs should provide for ventilation assessment that includes how the ventilation systems will be tested, what specific data will be collected and the frequency of testing to know / document if the systems are “operating per design” or at an appropriate level with regard to air exchanges per hour. 	<ul style="list-style-type: none"> • Ventilation with outdoor air. • Ventilation systems in each school building should be checked to ensure that it is functioning as designed or to applicable sections of ASHRAE Standard 62.1 such the minimum outdoor air rate (cubic feet per minute) per occupant or air exchange rates). • Based on the evaluations make appropriate repairs to increase or improve the ventilation as necessary. 	<ul style="list-style-type: none"> • See preceding comments with respect to ventilation.
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<p>6g. Would proactively addressing the presence of PCBs city-wide, regardless of future construction, significantly reduce exposures? If so, what factors are recommended for consideration in identifying buildings that should be prioritized for caulk management activities?</p>	<ul style="list-style-type: none"> • Use a stabilization approach where potential exposures are controlled through assessment or interim measures/best management practices until a time that PCB caulk removals can take place. 	<ul style="list-style-type: none"> • Yes. Prioritize based on type of ventilation (passive ventilation = highest priority); estimated number of PCB-containing ballast and frequency of ballast burnout; estimated linear feet of PCB-containing caulk interior and exterior; PCB concentration in the caulk (emission rates are proportional to PCB concentration in caulk); and condition of caulk (higher priority caulk is that which is weathered, brittle, or deteriorating). 	<ul style="list-style-type: none"> • Yes. Consider type of construction, amount of interior caulk, type of ventilation system, and information on energy intensity for heating and cooling.
<p>6h. Would air sampling be an effective means of confirming a prioritization scheme?</p>	<ul style="list-style-type: none"> • Yes (as part of the stabilization/prioritization process) 	<ul style="list-style-type: none"> • Yes 	<ul style="list-style-type: none"> • Yes, but needs to be representative.
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<p>6i. Would proactively evaluating the presence of PCBs in the soil at all schools with exterior PCB caulk, regardless of future construction, significantly reduce exposures?</p>	<ul style="list-style-type: none"> • At a minimum, perform survey as to the accessibility/use of exposed soil adjacent to each of the schools. • Recommends exposure reduction. 	<ul style="list-style-type: none"> • Potential exposure from soil may not be significant. Determine potential for release of PCBs from soil as well as corresponding exposure concentration. 	<ul style="list-style-type: none"> • Unlikely. Proactive evaluation would likely yield a negligible exposure benefit.
<p>6j. Are there any data gaps or limitations not identified by NYC?</p>	<ul style="list-style-type: none"> • Focus on a stabilization approach through assessment, interim measures, or best management practices until a final remedy can be implemented at each school. 	<ul style="list-style-type: none"> • Evaluate the efficacy of a hybrid approach of source modification plus contact encapsulation. 	<ul style="list-style-type: none"> • See response to prior questions. • Perform an analysis of the value of information gained from any additional studies. • Discuss why the Preferred Citywide Remedy does not include air sampling.